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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/682,301

10/09/2003

Qi Cai

TI-35741

7328

23494

7590

07/30/2004

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EXAMINER

JEANGLAUDE, JEAN BRUNER

ART UNIT

PAPER NUMBER

2819

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/682,301

Applicant(s)

CAI, QI

Examiner

Jean B Jeanglaude

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-29 is/are allowed.
- 6) ☒ Claim(s) 30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10-09-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

It is suggested to update the information under the sub-title "Related Applications".

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 30, 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. It is unclear in claim 30, how the first successive approximation subconverter stage produces a residue output and then receives the same residue as mentioned in claim 30, lines 2, 3.
4. Claim 31 is automatically rejected due to the fact that it depends on claim 31 which is an independent claim rejected under 112 2nd.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 30, 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas et al. (US Patent Number 6,124,818).

7. Regarding claim 30, Thomas et al. discloses a pipelined analog to digital conversion system (fig. 3) that comprises a first successive approximation subconverter stage (302, fig. 3) comprising a switched capacitor system (154, figs. 1A) including a first capacitor array (102, 204, 106, 108, 110, 112 form the capacitor array), the first successive subconverter stage (302) receives a conversion system analog input (V_{in}) and providing subconverter stage digital output (fig. 3) representative of the conversion system analog input and a first residue output (314, fig. 3) representative of a difference between the conversion system analog input and the first subconverter stage digital output (fig. 3)[as noted in fig. 3, the pipeline ADC has a number of bit in two stage successive approximation which receives analog signal to produce a digital signal at the output of the presampler¹ and also provides a residual signal at 314]; and a second successive approximation subconverter stage (350, fig. 3) comprising a second switched capacitor system (154, figs. 1A,B)[figs. 1A, 1B are representation of successive approximation subconverter in which switched capacitors are used with combination of a control system and SAR]; a second capacitor array (102, 204, 106, 108, 110, 112 form the capacitor array) [the second switched capacitor array has the same configuration as the second array], the first (second) successive subconverter stage receives the first residue output and providing a second subconverter stage digital output of the first residue output (fig. 3).

8. Regarding claim 31, Thomas et al. discloses a pipelined ADC (fig. 3) wherein the first (302) and second subconverter stage digital outputs (350) are both multi-bit (n-bit outputs)[col, 4, lines 5 – 9).

Allowable Subject Matter

9. Claims 1 – 29 are allowable.
10. Reasons for allowing these claims will be provided in the next office action.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
12. Ginetti (US Patent Number 5,764,176) discloses a pipelined ADCs and interstage amplifiers for such converters.
13. Bright (US Patent Number 6,222,478) discloses a pipeline ADC system using a modified coding scheme and method of operation.
14. Wada et al. (US patent Number 6,304,206) discloses a voltage comparator operational amplifier and ADC circuit employing the same.
15. Hisano (US patent Number 6,489,904) discloses a pipeline ADC with on chip digital calibration.
16. Zhang et al. (US patent Number 6,366,230) discloses a pipelined ADC.
17. Wu et al. (US patent Number 6,456,211) discloses a method and system for calibrating a data converter.
18. Sakurai (US patent Number 6,600,440) discloses a capacitor mismatch independent gain stage for pipeline ADCs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B Jeanglaude whose telephone number is 571-

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272-1804. The examiner can normally be reached on Monday - Friday 7:30 A. M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jean Bruner Jeanglaude
Primary Examiner
July 22, 2004